

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A laser driving apparatus including: ~~a laser~~; a laser driving circuit for supplying a drive current to ~~said a laser~~[[;]], and radio frequency current superimposing means for generating a radio frequency current and superimposing said radio frequency current on said drive current[[;]] comprising:

current monitoring means for monitoring said drive current;

optical detection means for detecting an optical output of said laser;

amplitude control means for controlling an amplitude of said radio frequency current to be superimposed on said drive current[[;]] said amplitude control means controls whether said radio frequency current is superimposed on said driving current or not;

optical output control means for controlling said laser driving circuit to ~~make~~ maintain said optical output of said laser at a constant level; and

control means for controlling said amplitude of said radio frequency current on the basis of ~~current~~ values of said drive current obtained by said current monitoring means at a plurality of said amplitudes of said radio frequency current obtained by said amplitude control means or detection values of said optical output of said laser obtained by said optical detection means at said plurality of said amplitudes of said radio frequency current obtained by said amplitude control means, said control means obtains a difference between said driving current monitored when said radio frequency current is superimposed on said driving current and said driving current monitored when said radio frequency current is not superimposed on said driving current, and controls said amplitude of said radio frequency current on the basis of said difference under the condition that said optical output of said laser is maintained at said constant level.

Claim 2 (Currently Amended): The laser driving apparatus as claimed in claim 1, wherein~~[[:]]~~, the plurality of said amplitudes of said radio frequency current are defined as two values including zero and non-zero.

Claim 3 (Cancelled).

Claim 4 (Currently Amended): The laser driving apparatus as claimed in claim ~~[[3]]~~ 1, wherein~~[[:]]~~ said control means controls said amplitude of said radio frequency current ~~so as to make constant said~~ maintain a constant difference between said driving current monitored when said radio frequency current is superimposed on said driving current and said driving current monitored when said radio frequency current is not superimposed on said driving current.

Claim 5 (Currently Amended): The laser driving apparatus as claimed in claim 1, wherein~~[[:]]~~ said amplitude control means controls whether said radio frequency current is superimposed on said driving current or not, and said control means obtains a difference between said optical output detected when said radio frequency current is superimposed on said driving current and said optical output detected when said radio frequency current is not superimposed on said driving current, and controls said amplitude of said radio frequency current on the basis of said difference under the condition that said driving current is maintained at said constant level.

Claim 6 (Currently Amended): The laser driving apparatus as claimed in claim 5, wherein:

said control means controls said amplitude of said radio frequency current ~~so as to~~ make maintain said difference between said optical output detected when said radio

frequency current is superimposed on said driving current and said optical output detected when said radio frequency current is not superimposed on said driving current constant.

Claim 7 (Currently Amended): The laser driving apparatus as claimed in claim 1, further comprising:

temperature monitoring means for monitoring a temperature related to said laser, wherein~~[[:]]~~, said control means controls said amplitude of radio frequency current when a change in said temperature satisfies a predetermined condition.

Claim 8 (Currently Amended): An optical head apparatus including~~[[:]]~~ an optical system~~[[:]]~~, ~~a laser for emitting laser light through said optical system~~; a laser driving circuit for supplying a drive current to ~~said laser~~; a laser for emitting laser light through said optical system, and radio frequency current superimposing means for generating a radio frequency current and superimposing said radio frequency current on said drive current for reading information signal from a recording medium, comprising:

current monitoring means for monitoring said drive current;

optical detection means for detecting an optical output of said laser;

amplitude control means for controlling an amplitude of said radio frequency current to be superimposed on said drive current~~[[:]]~~ said amplitude control means controls whether said radio frequency current is superimposed on said driving current or not;

optical output control means for controlling said laser driving circuit to control said optical output of said laser at a constant level; and

control means for controlling said amplitude of said radio frequency current on the basis of ~~current~~ values of said drive current obtained by said current monitoring means at a plurality of said amplitudes of said radio frequency current obtained by said amplitude control means or detection values of said optical output of said laser obtained by said optical

detection means at said plurality of said amplitudes of said radio frequency current obtained by said amplitude control means, said control means obtains a difference between said driving current monitored when said radio frequency current is superimposed on said driving current and said driving current monitored when said radio frequency current is not superimposed on said driving current, and controls said amplitude of said radio frequency current on the basis of said difference under the condition that said optical output of said laser is maintained at said constant level.

Claim 9 (Currently Amended): The ~~laser-driving~~ optical head apparatus as claimed in claim 8, wherein[[:]] the plurality of said amplitudes of said radio frequency current are defined as two values including zero and non-zero.

Claim 10 (Cancelled).

Claim 11 (Currently Amended): The ~~laser-driving~~ optical head apparatus as claimed in claim [[10]] 8, wherein[[:]] said control means controls said amplitude of said radio frequency current ~~so as to make constant said~~ maintain a constant difference between said driving current monitored when said radio frequency current is superimposed on said driving current and said driving current monitored when said radio frequency current is not superimposed on said driving current.

Claim 12 (Currently Amended): The ~~laser-driving~~ optical head apparatus as claimed in claim 8, wherein[[:]] said amplitude control means whether said radio frequency current is superimposed on said driving current or not, and said control means obtains a difference between said optical output detected when said radio frequency current is superimposed on said driving current and said optical output detected when said radio frequency current is not

superimposed on said driving current, and controls said amplitude of said radio frequency current on the basis of said difference under the condition that said optical output of said laser is maintained at said constant level.

Claim 13 (Currently Amended): The ~~laser-driving~~ optical head apparatus as claimed in claim 12, wherein:

said control means controls said amplitude of said radio frequency current so as to ~~make~~ maintain constant said difference between said optical output detected when said radio frequency current is superimposed on said driving current and said optical output detected when said radio frequency current is not superimposed on said driving current.

Claim 14 (Currently Amended): The ~~laser-driving~~ optical head apparatus as claimed in claim 8, further comprising:

temperature monitoring means for monitoring a temperature related to said laser, wherein~~[[:]~~, said control means controls said amplitude of radio frequency current when a change in said temperature satisfies a predetermined condition.

Claim 15 (Currently Amended): The ~~laser-driving~~ optical head apparatus as claimed in claim 8, wherein~~[[:]~~ said amplitude of said radio frequency current is controlled under control that said optical output control means controls said laser driving circuit to make said optical output of said laser at said constant level which is not greater than a reproduction power necessary for reading said information signal.

Claim 16 (Currently Amended): An information processing apparatus including ~~[[a]]~~ ~~laser~~; a laser driving circuit for supplying a drive current to a said laser~~[[:]~~, a radio frequency current superimposing means for generating a radio frequency current and superimposing

said radio frequency current on said drive current[[:]], a lens system for reading and recording information signal for a recording medium; and servo control means for controlling said lens system; comprising:

current monitoring means for monitoring said drive current;

optical detection means for detecting an optical output of said laser;

amplitude control means for controlling an amplitude of said radio frequency current to be superimposed on said drive current[[:]] said amplitude control means controls whether said radio frequency current is superimposed on said driving current or not;

optical output control means for controlling said laser driving circuit to ~~make~~ maintain said optical output of said laser at a constant level; and

control means for controlling said amplitude of said radio frequency current on the basis of ~~current~~ values of said drive current obtained by said current monitoring means at a plurality of said amplitudes of said radio frequency current obtained by said amplitude control means or detection values of said optical output of said laser obtained by said optical detection means at said plurality of said amplitudes of said radio frequency current obtained by said amplitude control means, said control means obtains a difference between said driving current monitored when said radio frequency current is superimposed on said driving current and said driving current monitored when said radio frequency current is not superimposed on said driving current, and controls said amplitude of said radio frequency current on the basis of said difference under the condition that said optical output of said laser is maintained at said constant level.

Claim 17 (Currently Amended): The ~~laser-driving~~ information processing apparatus as claimed in claim 16, wherein[[:]]the plurality of said amplitudes of said radio frequency current are defined as two values including zero and non-zero.

Claim 18 (Cancelled).

Claim 19 (Currently Amended): The ~~laser driving~~ information processing apparatus as claimed in claim [[18]] 16, wherein[[:]] said control means controls said amplitude of said radio frequency current ~~so as to make constant said~~ maintain a constant difference between said driving current monitored when said radio frequency current is superimposed on said driving current and said driving current monitored when said radio frequency current is not superimposed on said driving current.

Claim 20 (Currently Amended): The ~~laser driving~~ information processing apparatus as claimed in claim 16, wherein[[:]] said amplitude control means controls whether said radio frequency current is superimposed on said driving current or not, and said control means obtains a difference between said optical output detected when said radio frequency current is superimposed on said driving current and said optical output detected when said radio frequency current is not superimposed on said driving current, and controls said amplitude of said radio frequency current on the basis of said difference under the condition that said drive current of said laser is maintained at a constant level.

Claim 21 (Currently Amended): The ~~laser driving~~ information processing apparatus as claimed in claim 20, wherein:

said control means controls said amplitude of said radio frequency current ~~so as to make~~ maintain constant said difference between said optical output detected when said radio frequency current is superimposed on said driving current and said optical output detected when said radio frequency current is not superimposed on said driving current.

Claim 22 (Currently Amended): The ~~laser driving~~ information processing apparatus as claimed in claim 16, further comprising:

temperature monitoring means for monitoring a temperature related to said laser, wherein[:], said control means controls said amplitude of radio frequency current when a change in said temperature satisfies a predetermined condition.

Claim 23 (Currently Amended): The ~~laser driving~~ information processing apparatus as claimed in claim 16, wherein[:], said amplitude of said radio frequency current is controlled, while said optical output control means controls said laser driving circuit to make said optical output of said laser at said constant level which is not greater than a reproduction power necessary for reading said information signal.

Claim 24 (Currently Amended): The ~~laser driving~~ information processing apparatus as claimed in claim 16, wherein[:], said amplitude control means and said control means control said amplitude of said radio frequency current when said reading and recording said information signal is not executed.